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ABSTRACT

A study of the relationship of bilingualism to personality traits focused on two questions: (1) are any language-associated differences between memory systems in bilinguals reflected in similar differences in personality structures?; and (2) if such differences exist, can they be tapped by comparing responses to personality-evoking stimulus in the first language to responses to the same stimulus in the second language? Subjects were Chinese-English and Spanish-English coordinate bilingual adults, and the test was the California Psychological Inventory, administered in each of the bilinguals' languages. Resulting personality profiles derived from the English version differed significantly from those derived from the native-language version, strongly suggesting that coordinate bilinguals function differently depending on their current linguistic context. These results are interpreted as clear evidence for the existence in bilinguals of differing cognitive processes in the two languages. (MSE)

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BILINGUALISM: LANGUAGE AND PERSONALITY SHIFT

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Paper presented at the Annual Conference of the Western Psychological Association, Long Beach, California, April 23rd. 1987.

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BILINGUALISM AND PERSONALITY SHIFT

-- Philip V. Hull, MA, PhD Cand.

Although the subject of considerable popular speculation, personality is one aspect of bilingual behavior which has never been systematically investigated. The present study was undertaken in an attempt to try to answer two questions relevant to this topic: (1) To the extent that human personality is learned, are any language-associated differences between memory systems in bilinguals reflected in similar differences between the personality structures of bilinguals? (2) If such differences exist, can they be tapped in the same way that differences in memory processes have been tapped, in other words, by comparing responses to a personality-evoking stimulus in a bilingual's first language with responses to the same stimulus presented in his/her second language? It was hypothesized that were any such differences to be found, they would be most evident among a population of "coordinate" bilinguals (cf. Ervin & Osgood, Kolers) or those bilinguals who have learned their two languages in relatively separate socio-cultural milieux.

Subjects were Chinese-English and Spanish-English bilinguals all of whom were immigrants who began learning English as a second language after the age of eight years and after their arrival in the U.S.. They could thus be considered "coordinate" bilinguals.

The California Psychological Inventory (CPI) was chosen as the measure for several reasons: It is the most reliable and widely-used measure of personality for non-pathological populations both within the U.S. and overseas. It has been used in over twenty languages in as many countries. The Chinese, and particularly the Spanish, translations have been refined and revised over many years to a level of reliability among monolingual populations similar to that of the U.S. edition. In a within-subjects repeated-measures design, the CPI was administered twice, once in the subjects' first language and once in English, their second language.

Personality profiles derived from the English version differed significantly in both groups from those derived from the native language version, strongly suggesting that "coordinate" bilinguals function differently depending on their current linguistic context. This finding provides clear evidence for the existence in bilinguals of differing cognitive processes in the two languages.

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The issue that I would like to address today is that of the relation between language and bilingual behavior. There are at least three distinct lines of research in this area identified by those coming from neurological, cognitive (memory), or personality perspectives.

One approach is neurological. Although the data are limited and most studies using this approach have severe methodogical problems, there is some neurological evidence from research on brain damaged bilinguals to suggest that: (i) language function in general may be less lateralized to the left hemisphere in bilinguals than in monolinguals, and (ii) that some functions of each of a bilingual's two languages may be differentially located in the brain. I won't elaborate on these findings today.

A second approach has been to investigate the possibility that bilinguals have available to them differential memory processes -- specifically, distinct stores and routes for retrieval -- each associated with one of the bilingual's two languages.

The third approach concerns the issue of personality. In this approach, researchers have investigated the possibility that bilinguals have available to them distinct personal identities, each associated with one of the bilingual's two languages. To the extent that personality is rooted in learned experience stored in memory, these latter two approaches are clearly very closely related -- conceptually, if not methodologically.

Researchers approaching the issue from a memory perspective have typically investigated the relative validity of two competing hypotheses about the nature of memory storage and retrieval in bilinguals (refer to Appendix I).

On the one hand is the *independence* position of separate storage systems which claims that information stored in semantic and episodic memory is in separate systems, linked only through translation. On the other hand is the *interdependence* position which claims that information is stored in an abstract or supra-linguistic format with each language accessing one store, with a tagging process operating to identify the specific language in which information was experienced. A third hy-

pothesis, which attempts to reconcile the first two, is that so-called *coordinate bilinguals*, who are those bilinguals who learned their first language (L1) in a different socio-cultural context from that of their second language (L2), have a *separate* memory system. An example of this kind of bilingual might be a Chinese immigrant who arrives in the U.S. at age 10 and begins learning English after his/her arrival. So-called *compound bilinguals*, on the other hand, who learned their L2 in the same context as that of their L1 would have a *single* memory system. An example of this kind of bilingual would be a child of parents who speak two different languages, or a college student who learns a foreign language in a classroom setting.

Canadian investigations in the early 1960's -- such as Kolers' -- compared the associations of given lexical items in one language with those of their translation-equivalents in a bilingual's second language. The hypothesis for these investigators, who were coming from an *interdependence* position, was that knowledge was stored in some common, abstracted representation and so that if the word association tests tapped into that knowledge, bilinguals would give similar associations to words that translated each other. The finding was that commoness of representation characterized only a small minority of all responses. This represented strong evidence against the *interdependence* position. Later experiments investigating whether and to what degree memory in bilinguals is represented conceptually, in a single store, or lexically, in separate stores, have been less clear.

There are major methodological problems with many of these studies however. In many cases results obtained could be attributed to the procedures used, the task demands, or subject selection. For example it is rare in the literature to see any mention of how bilingual subjects were measured for language dominance, or if they were measured at all. Age of acquisition, and the sociocultural context in which each language was learned go similarly unreported. This latter issue is especially critical in light of the theoretical distinction, which I mentioned before, between *compound* and *coordinate* bilinguals (refer to Appendix I).

Although the subject of considerable popular speculation, personality is one aspect of bilingual behavior which has never been systematically investigated. Research on language-associated differences of personal identity or personality in bilinguals has been scanty and often substantiated only with anecdotal evidence. An exception is Ervin-Tripp's work (1973) in which an effort was made to control for language dominance and/or context of acquisition. In Italian-Americans use of the weaker language tended to recall experiences first codified in that language and experiences appropriate to that culture. Among Japanese-English coordinate bilingual women, ambiguous pictures were interpreted differently according to the language in which the pictures were described: When responding in Japanese, subjects talked more about emotions, family and personal ties, and social obligations

than when they responded in English.

While fascinating, the use of such qualitative methods as were used in these studies makes reliable interpretation difficult and valid comparison with other data almost impossible.

Given this situation, we decided to try a more systematic investigation of personality in bilinguals using a statistically reliable and well-validated assessment instrument in the hope of overcoming some of the problems faced by previous researchers. Two questions seemed particularly relevant to a study of this issue: (1) To the extent that human personality is learned, are any language-associated differences between memory systems in bilinguals reflected in similar differences between the personality structures of bilinguals? and (2) If such differences exist can they be tapped in the same way that differences in memory processes have been tapped?? In other words, by comparing responses to a personality-evoking stimulus in a bilingual's L1 with responses to the SAME stimulus presented in his/her L2?

The present study was undertaken in an attempt to try to answer these questions. It was hypothesized that were any such differences to be found, they would be most evident among a population of *coordinate* bilinguals.

Subjects for this on-going study were Spanish-English, Chinese-English Korean-English, Japanese-English, and French-English bilinguals. Today I'm going to present the data for the Chinese-English and Spanish-English bilinguals. The reason for this is that data for the other groups is still being collected. The Spanish-English bilinguals were, for the most part, from Mexico while the Chinese-English bilinguals came from Taiwan and Hong Kong. They were all over eight years old before they began learning English as a second language naturalistically after their arrival in the U.S. so their L1 was firmly established before acquisition of their L2 began. All of these subjects could thus be considered *coordinate* bilinguals. They had all scored above 500 on the *TEST OF ENGLISH AS A FOREIGN LANGUAGE* and had survived a semester of undergraduate study at the University of California at Berkeley before being recruited.

The personality measure used was the California Psychological Inventory or CPI. This measure was chosen for several reasons: It is statistically reliable and is the most widely-used measure of personality for non-pathological populations. No other personality test for normal populations has been so thoroughly validated with external criteria. It has been translated into more than 20 languages and used in as many countries. The Chinese, and particularly the Spanish, translations have been refined over many years to a level of reliability among monolingual populations similar to that of the U.S. edition. In particular, care has been taken to ensure that individual items have identical cultural significance and response pat-

terns thus allowing cross-cultural comparisons. For those of you who are not familar with this instrument -- and I assume that that's most people here since this is not a conference on personality assessment -- let me describe it briefly: The CPI is a self-admininstered paper-and-pencil personality test which takes takes approximately an hour to complete. The content is geared more to middle-class students and young adults than to older or other socio-economic groups and consists of 480 statements to which respondents indicate whether they agree or disagree. Most of the statements report on typical behavior patterns and customary feelings, opinions, and attitudes about social, ethical, and family matters. Item scores are converted into 18 separate scores on scales which represent what Gough has called *folk concepts* of personality (refer to Appendix II).

These *folk concepts* have been validated in many different countries and appear to have universal validity. This doesn't mean that different cultures don't assign different values to the concepts, merely that the concepts themselves have cross-cultural meaning. In other words, ALL cultures make distinctions between individuals on the dimensions of the scales but place different values on any particular dimension. To facilitate interpretation, these scales are divided into 4 Classes: The six Class I scales measure poise, social ascendency, self-assurance, and interpersonal adequacy. The scales are DOMINANCE, CAPACITY FOR STATUS, SOCIABILITY, SOCIAL PRESENCE, SELF-ACCEPTANCE, and SENSE OF WELL-BEING. The 6 Class II scales assess socialization, maturity, responsibility, and intrapersonal structuring of values and include the scales of RESPONSIBILITY, SOCIALIZATION, SELF-CONTROL, TOLERANCE, GOOD IMPRESSION, and COMMUNALITY. The 3 Class III scales are self-explanatory -- ACHIEVEMENT VIA CONFORMANCE, ACHIEVEMENT VIA INDEPENDENCE, AND INTELLECTUAL EFFICIENCY. Class IV is somewhat of a residual class, containing the 3 scales of PSYCHOLOGICAL-MINDEDNESS, FLEXIBILITY, and FEMININITY. I will discuss the meanings of some individual scales in a moment.

Using a within-subjects repeated-measures design, subjects completed the CPI twice -- once in their native language and once in English with 5 to 15 days between sessions.

The top grid (refer to Appendix III) presents the results for the Spanish-English bilinguals and the bottom grid those for the Chinese-English bilinguals. These results have been collapsed across sex which necessitated the elimination of the FEMININITY scale -- the scoring and meaning of which differs for males and females. Those scales asterisked at the top and bottom on each grid showed significant differences in response between the two languages -- strongly suggesting that *coordinate* bilinguals function differently depending on their current linguistic context.

Two things should be kept in mind while considering these results: Firstly, one

would not expect large personality differences since the scales measure personal style which can remain the same across a wide variety of environments. secondly, group profiles such as these, show a remarkable stability not found in individual profiles so that relatively small differences are meaningful.

Although the individual scales which show differences are not of central importance to the present study, in the Mexican sample, they do present an intuitively appealing picture of individual changes between cultures. Subjects from the more traditional Mexican culture score higher in English on the following scales as you can see on the top profile:

SOCIAL PRESENCE -- which is a tendency to create an impression on others i.e., to be noticed. SELF-ACCEPTANCE -- in the everyday sense of liking or of not being overly critical of oneself. WELL-BEING -- which is a sense of physical and emotional robustness and lack of a high degree of anxiety. and the two achievement measures: ACHIEVEMENT via CONFORMANCE and ACHIEVEMENT via INDEPENDENCE, which suggest an overall increase in drive towards achievement, regardless of whether it is expressed in socially delimited or individualistic paths.

These results suggest that in English, with its associative links to an American culture of individual achievement and fluid social classes, subjects feel more free to express or externalize their individual desires without so much reference to a pre-designated assigned place in society. They are lower in English on SELF-CONTROL and desire to create a GOOD IMPRESSION, thus reinforcing the above conclusion. The COMMUNALITY scale is a validity or truthfulness scale which includes items that indicate the degree to which an individual is willing to admit to minor and common social transgressions. Again, in reference to a less-restricted American culture, this scale is higher in English than in Spanish.

The Chinese-English bilinguals came from Hong Kong, from Taiwan, and from Canton, Mainland China, whose cultures are more heterodox than is Mexican culture making interpretations like the one I have given here for the Mexican data more problematic.

In conclusion, I should emphasize that although this picture of the personality elicited by different linguistic environments is appealing, the main result and the importance of the research is that some such differences exist. This finding, namely that groups of bilinguals have different personality profiles which can be elicited by changing the language in which they respond provides clear evidence for the existence of differing mental functioning in the two languages. While not inconsistent with the limited neurological data available, in light of the ambiguity of findings in

bilingual memory research, such clear results would not be anticipated.

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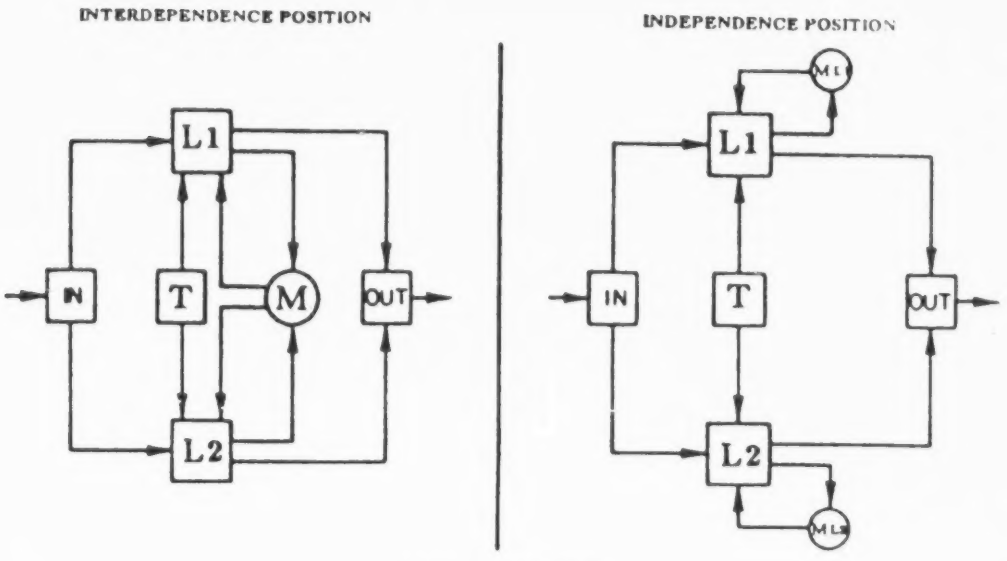
APPENDIX I

REPRESENTATIONS OF TWO COMPETING HYPOTHESES OF BILINGUAL MEMORY



COMPOUND/COORDINATE HYPOTHESIS

A **COMPOUND** bilingual learns L2 in the same socio-cultural context as that in which L1 was learned e.g., an American college student learning a foreign language in the classroom.

--- Has **INTERDEPENDENT** memory systems.

A **COORDINATE** bilingual learns L2 in a different socio-cultural context from that in which L1 was learned e.g., an older child or adult immigrant who learns English after arrival in the U.S.

--- Has **INDEPENDENT** memory systems.

APPENDIX II

CALIFORNIA PSYCHOLOGICAL INVENTORY -- AN OUTLINE OF SCALES

1. **(Do) DOMINANCE** - assesses social ascendency, leadership and self-confidence
2. **(Cs) CAPACITY FOR STATUS** - predicts social status and interpersonal prestige
3. **(Sy) SOCIABILITY** - measures extroversion, degree of social participation
4. **(Sp) SOCIAL PRESENCE** - measures poise, self-confidence, and spontaneity
5. **(Sa) SELF ACCEPTANCE** - measures sense of personal worth
6. **(Wb) SENSE OF WELL-BEING** - measures sense of physical and mental health and vitality
7. **(Re) RESPONSIBILITY** - social responsibility and personal dependability
8. **(So) SOCIALIZATION** - measures social conformity and norm-following
9. **(Sc) SELF-CONTROL** - measures self-restraint and self-regulation Freedom from impulsivity
10. **(To) TOLERANCE** - measures social tolerance and lack of ethnocentrism
11. **(Gl) GOOD IMPRESSION** - measures concern about how others react to oneself
12. **(Cm) COMMUNALITY** - measures validity or truthfulness of responses
13. **(Ac) ACHIEVEMENT VIA CONFORMANCE** - measures need and ability to achieve Success in socially-constrained situations
14. **(Ai) ACHIEVEMENT VIA INDEPENDENCE** - predicts need for and success in independent, creative endeavors
15. **(Ie) INTELLECTUAL EFFICIENCY** - correlates highly with standard measures of IQ
16. **(Py) PSYCHOLOGICAL-MINDEDNESS** - measures insight into others' needs and motives
17. **(Fx) FLEXIBILITY** measures flexibility/rigidity
18. **(Fe) FEMININITY** - measures degree of conformance to stereotypically masculine and feminine attitudes and behavior

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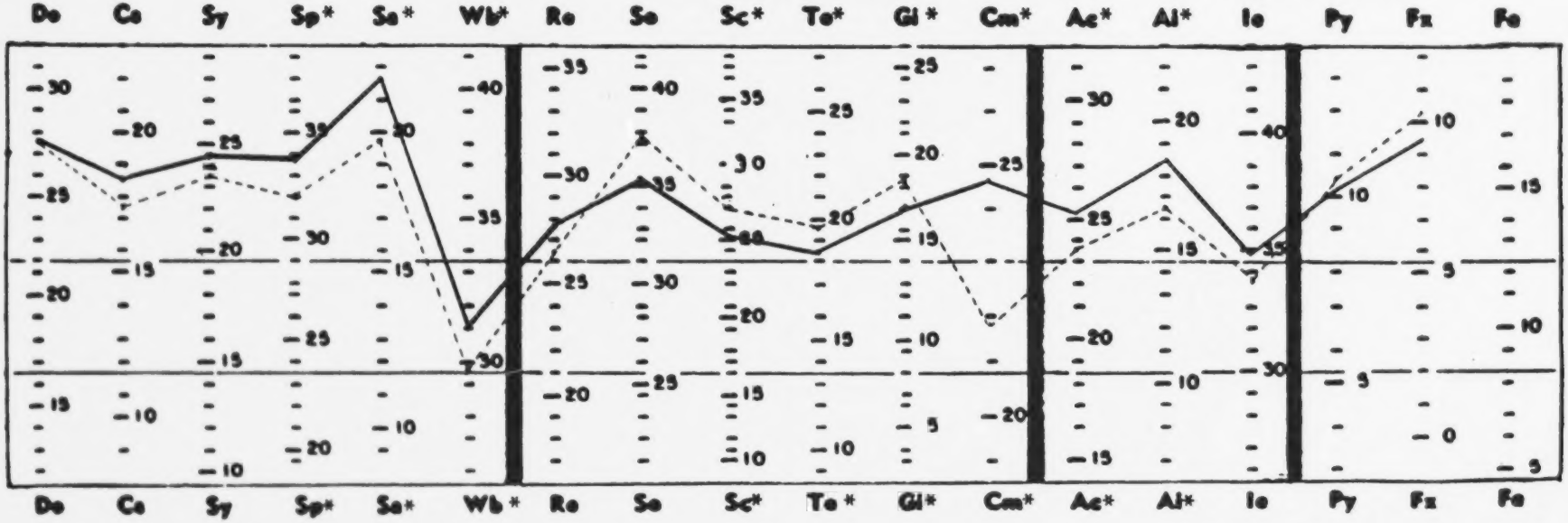
PROFILE SHEET FOR THE *California Psychological Inventory*

FIGURE 1

SPANISH-ENGLISH BILINGUALS

----- = Spanish scores
—— = English scores
(N=41)



ASTERISKED (*) SCALES: $p < .05$ (BOTH GRIDS)

FIGURE 2

CHINESE-ENGLISH BILINGUALS

---- = Chinese scores
—— = English scores
(N=33)